

EXAMINER'S AMENDMENT

1) An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment which places this application in condition for allowance.

During a telephone conversation conducted on Oct. 22, 2010, Linda Parker, requested an extension of time for five MONTH(S) and authorized the Director to charge Deposit Account No. 02-2448 the required fee of \$620 (\$2350 less \$1730 already paid on Oct. 4, 2010 for 4-months) for this extension and authorized the following examiner's amendment. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2) The application has been amended as follows:

REPLACE THE TITLE WITH: -- METHOD OF IMPROVING GENE TRANSFER
EFFICIENCY INTO PLANT CELLS UTILIZING HEAT AND CENTRIFUGATION
--

IN THE CLAIMS:

Art Unit: 1638

1. (Currently Amended) A method for promoting efficiency of transformation of gene transfer into plant embryos, plant calli or cultured plant cells by ~~a bacterium belonging to genus~~ *Agrobacterium*, which comprises:

a) heating and centrifuging said plant embryos, plant calli or cultured plant cells; and

b) contacting said plant cells or plant tissue with the bacterium so that [[the]] a gene is transferred into the plant embryos, calli, or cells;

wherein contact between the plant cells or plant tissue and the bacterium occurs after ~~or while~~ heating ~~and/or~~ and centrifuging the plant cells or plant tissue,

wherein heating is performed at a temperature of 37°C to 52°C for 1 minute to 24 hours,

wherein said centrifuging is carried out under a centrifugal acceleration of 1000G to 150,000G for 1 second to 4 hours and

wherein the efficiency of ~~gene transfer~~ transformation is increased at least twice in comparison to the efficiency of ~~gene transfer~~ transformation by *Agrobacterium* [[,]] wherein the plant cells or plant tissues are not heated or centrifuged according to steps a) and b).

2-11. (Canceled)

Art Unit: 1638

12. (Currently Amended) A method for preparing a plant from plant embryos, plant calli or cultured cells ~~characterized by using~~ comprising the method according to claim 1 and further comprising regenerating a plant from the transformed cells or tissues.

13. (Canceled)

14. (Currently Amended) The method according to claim 1, wherein said plant cells or plant tissue ~~[[used]] are(is) originated~~ from an angiosperm.

15. (Currently Amended) ~~[[A]] The method for preparing an angiosperm characterized by using the method according to claim [[14]]~~ 12; wherein said plant is an angiosperm.

16. (Canceled)

17. (Currently Amended) The method according to claim 14, wherein said plant cells or plant tissue ~~[[used]] are(is) originated by~~ from a monocotyledon.

Art Unit: 1638

18. (Currently Amended) ~~[[A]] The method for preparing a monocotyledon~~
~~characterized by using the method according to claim [[17]] 12; wherein said plant~~
is a monocotyledon.

19. (Canceled)

20. (Currently Amended) The method according to claim 17, wherein said plant
cells or plant tissue ~~[[used]] are(is) originated~~ from a plant belonging to family
Gramineae.

21. (Currently Amended) ~~[[A]] The method for preparing a plant belonging to~~
~~family Gramineae characterized by using the method according to claim [[20]] 12;~~
wherein said plant belongs to family Gramineae.

22. (Canceled)

23. (Currently Amended) The method according to claim 20, wherein said plant
cells or plant tissue are(is) ~~[[of]]~~ from rice or maize.

Art Unit: 1638

24. (Currently Amended) ~~[[A]] The method for preparing rice or maize~~
~~characterized by using the method according to claim [[23]] 12; wherein said plant~~
is rice or maize.

25. (Canceled)

Allowable Subject Matter

3) Claims 1, 12, 14, 15, 17, 18, 20, 21, 23, and 24 are allowed and are
renumbered as claims 1-10, respectively.

EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE

4) The following is an examiner's statement of reasons for allowance: The prior art (Hansen) taught a method that differed from the claimed method because it lacked the step of centrifugation. Although centrifugation of plant cells and tissues was known in the art (ie. Lyznik et al), there was no teaching or suggestion in the prior art that the combination of heating and centrifuging plant cells, calli, or embryos prior to incubation with *Agrobacterium* would result in significantly higher rates of transformation. The instant application showed transformation rates that were double compared to heat alone (see Table 3) or five times higher compared to no heat or centrifugation (see Table 3) or, in another experiment, five times higher compared to heat alone or seven times higher compared to no heat or centrifugation (see Table 4), or double compared to no heat or centrifugation and 30% increase compared to heat alone (see Table 5), or double compared to no heat or centrifugation (see Table 7), or even 29 times higher compared to no heat or centrifugation (see Table 8). The instant specification provides guidance on pages 5 and 6 regarding longer incubation times for lower temperatures and shorter incubation times for higher temperatures which is consistent with the data provided in a declaration on Oct. 24, 2008. These increases in transformation efficiency constitute unexpected results that overcome the prior art, and therefore, the instant claims are allowable.

5) Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6) Any inquiry concerning this communication or earlier communications from the examiner should be directed to CATHY K. WORLEY whose telephone number is (571)272-8784. The examiner can normally be reached on M-F 10:00 - 4:00, with additional variable hours before 10:00 and after 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cathy K. Worley/
Primary Examiner, Art Unit 1638